## YOSHIMURA, GWEN

**From:** Andrea Polidori <apolidori@aqmd.gov>
**Sent:** Monday, September 16, 2013 2:04 PM
**To:** YOSHIMURA, GWEN
**Cc:** Hoag, Katherine
**Subject:** RE: Two outstanding forms?
**Attachments:** Previous Findings and Corrective Actions_for Region 9.xlsx

Gwen,

Attached is a matrix of previous findings with the current status of corrective actions. It includes inputs/comments from several staff members.
I hope you find it to be helpful,

Andrea

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**From:** YOSHIMURA, GWEN [Yoshimura.Gwen@epa.gov]
**Sent:** Monday, September 16, 2013 1:35 PM
**To:** Andrea Polidori
**Cc:** Hoag, Katherine
**Subject:** RE: Two outstanding forms?

Hi Andrea,

That's great, thank you. We certainly understand remote access issues, so tomorrow morning will certainly work.

Thanks!

-Gwen

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Gwen M. Yoshimura
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**From:** Andrea Polidori [mailto:apolidori@aqmd.gov]
**Sent:** Monday, September 16, 2013 1:34 PM
**To:** YOSHIMURA, GWEN
**Cc:** Hoag, Katherine
**Subject:** RE: Two outstanding forms?

Hi Gwen,

My apologies, probably I did not attach them too my previous emails. I am at home at the moment but I will send you the remaining forms either later this afternoon (if I can get access to my office computer remotely) or early tomorrow morning. Also, I am in the process of completing a spreadsheet summarizing previous findings and corrective actions taken. I will send that table to you later today.

Thanks for you patience,

Andrea

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**From:** YOSHIMURA, GWEN [Yoshimura.Gwen@epa.gov]
**Sent:** Monday, September 16, 2013 1:19 PM
**To:** Andrea Polidori
**Cc:** Hoag, Katherine
**Subject:** Two outstanding forms?

Hi Andrea,

Could you check and see if you've sent the "data management-continuous" form back to us? I can't seem to locate it. Also, if you could read pages 5-11 of the "SCAQMD TSA template" for any updates/accuracy, that'd be great.

Thanks!

-Gwen


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**From:** YOSHIMURA, GWEN
**Sent:** Wednesday, July 31, 2013 10:34 AM
**To:** JLow@aqmd.gov; apolidori@aqmd.gov; 'reden@aqmd.gov'
**Cc:** Hoag, Katherine; Flagg, MichaelA; Plate, Mathew
**Subject:** Re: South Coast TSA

Hello,

As you know, Meredith is now the manager for the Air Quality Analysis Office. We are therefore working to distribute her former monitoring team staff responsibilities, one of which is the South Coast TSA. Kate Hoag and I are taking over the TSA, and Mat Plate will continue to be involved.

We wanted to check back in with you about a few things.

1. Mat Plate and I plan to come out September 24-25. If you could confirm that those dates still work for you, that'd be great. We cannot push the date much further back, as the TSA needs to be completed before the end of September.

2. Meredith sent a number of forms along with her May 29th email (see below). Because Kate and I catching up a bit, it would be helpful to get these forms back as early as possible. Please let us know if you might be able to get the forms to us by August 31st or earlier.
3. Please also send us a matrix of previous findings with the current status of corrective actions. Again, by August 31st would be great.
4. Finally, scheduling a short check-in call a few weeks before the TSA. Do any of the following times work for you:
    a. Wednesday 9/4 at 11am, 2pm, or 3pm
    b. Thursday 9/5, any hour between 9 and 4
    c. Friday 9/6, any hour between 9 and 4

Thanks much! Please let me or Kate know if you have any questions. Looking forward to seeing you all.

-Gwen


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**From:** Kurpius, Meredith
**Sent:** Wednesday, May 29, 2013 1:30 PM
**To:** 'Jason Low'; apolidori@aqmd.gov; 'reden@aqmd.gov'
**Cc:** Plate, Mathew
**Subject:** South Coast TSA

Rudy, Jason, and Andrea,
It has been 3 years since our last Technical System Audit (TSA). As the regulation requires, it is time for another TSA. We will be doing a scaled-back in-person audit this time. Mat Plate and I intend to spend 2 days with you, hopefully in July. Please let me know if July 23-25 will work for an on-site visit. I will arrange a teleconference a few weeks prior to the on-site visit to review the schedule and address and questions.

I will be sending a detailed agenda for your review in the next few weeks. In the meantime, there are 3 sets of information that we will need roughly two weeks prior to the on-site visit:

- The section of the previous report that describes your ambient air monitoring program – please review and revise the section called, "Overview of Air Monitoring Program" to reflect current operations. I included the rest of the TSA report template in case you would like to see the structure of the entire report. [attachment: SCAQMD TSA template.docx)
- TSA Forms – please distribute and start filling them out. Note that much of the field operations information is already in the annual network plan. There is no need to copy the field operations information to the forms – you can simply reference the annual network plan. [all other attachments]
- Matrix of previous findings with current status of corrective actions.

Mat may also want some quality system documents but he will get in touch to request those if he needs them.

Let me know if you have any questions or thoughts. Thanks!

-Meredith

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| # | Finding | Branch | Group | Discussion | Status Update/ Response | Additional Comments |
|---|---|---|---|---|---|---|
| 1 | ALL | All | A1 | QAPPs were not complete and were not approved internally or by U.S. EPA | Criteria Pollutant Monitoring Program QAPP was approved by the U.S. EPA Region 9 in January 2013. PM2.5 Speciation QAPP has been revised based on EPA Region 9 comments and is waiting for internal approval. NATTS, NCore, and Special Monitoring QAPPs have been finalized and are waiting for internal approval. PAMS QAPP in hiatus until program is redefined | |
| 2 | ALL | All | A1 | SOPS were not complete and were not approved internally or by U.S. EPA | All critical SOPs have been completed, tracked, and finalized with internal review and signatures | |
| 3 | QA | QA | A2 | QA laboratory records are not centralized | QA laboratory electronic records are being stored on a centralized network drive, which backup schedule is in accordance with the QMP and SCAQMD Information Management policies | |
| 4 | AM | SUP | A2 | Calibration laboratory records are not centralized | Calibration records are kept on a common network drive and organized by station and year. The network drive is backed up in accordance to the Information Management policy and SCAQMD QMP | |
| 5 | QA | QA | A2 | Electronic laboratory records not maintained to prevent modification | QA Share drive directory has tiered user access privileges which limits the ability to edit or change files. Finalized QA laboratory documentation is being printed to PDF format | |
| 6 | AM | SUP | A2 | Electronic laboratory records not maintained to prevent modification | A network drive has been set up with access level privileges to limit access to calibration files; also documents have been electronically printed to PDF format to reduce the possibility of modification | |
| 7 | QA | QA | A2 | System to Backup of laboratory electronic records | QA laboratory electronic records are being stored on a centralized network drive, which backup schedule is in accordance with the QMP and SCAQMD Information Management policies | |
| 8 | AM | SUP | A2 | System to Backup of laboratory / Air Monitoring Calibration electronic records | Calibration records are kept on a common network drive and organized by station and year. The network drive is backed up in accordance to the Information Management policy and AQMD QMP | |
| 9 | AM | SUP | A2 | Calibration forms not consistent | All calibration forms within the support group have been standardized | |
| 10 | AM | SUP | A2 | Required information is not always recorded | Systems for the review and approval of calibration forms with version control has been implemented to include review by Senior AQIS. This will allow omissions to be identified and (when necessary) forms to be sent back for completion | |
| 11 | AM | SUP | A2 | Recording errors were found that should have been corrected by the primary technician, peer review or management review | Systems for the review and approval of calibration forms with version control has been implemented to include review by Senior AQIS. This will allow errors to be identified and corrected | |
| 12 | LAB | VOC | A3 | Staffing near capacity | Efforts were made to address this problem. Critical staff vacancies in the affected groups were filled. However, retirement and unexpected loss of key personnell occurred | |
| 13 | ALL | ALL | A3 | Limited staffing or equipment in several key areas is significantly impacting monitoring program performance and quality | | |
| 14 | QA | QA | A3 | Staffing limited | | |
| 15 | LAB | PM / VOC | A4 | SOPs should include QA schedule, documentation of review of logbooks and control charts | It was a conscious decision to have the QA schedules appear in the QAPPs and not in the SOPs. This is because a QA schedule is a program derived (and not method based) component | AQMD is discussing with EPA Region 9 wheather or not the QA documentation meets the suggested guidelines for SOPs given the AQMD organizational and program structure |
| 16 | LAB | VOC | A4 | SOPs should include QA schedule, documentation of review of logbooks and control charts | It was a conscious decision to have the QA schedules appear in the QAPPs and not in the SOPs. This is because a QA schedule is a program derived (and not method based) component | AQMD is discussing with EPA Region 9 wheather or not the QA documentation meets the suggested guidelines for SOPs given the SCAQMD organizational and program structure |

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| 17 | QA | QA | A4 | Formal internal audits should be performed at minimum annually | Formal/routine internal audits have been implemented | |
| 18 | QA | QA | A4 | QA staff should become familiar with ongoing laboratory operations | The combined QA Branch has extensive, historical and recent, experience in the laboratory on most federal programs and has technical expertise with the analytical methods. The Branch is familiar with all operations and is integrated into the Laboratory and Atmospheric Measurement SOP development and approval process. However, the QA Branch recognizes that it should become "more familiar" with all varrious laboratory operations | Regular communication, SOP review, QAPP development reinforces the knowledge of laboratory operations, and annual internal TSAs assist in ongoing updating and familiarizing QA staff. A temporary cross training of Senior QA chemist occurred in 2011 in the PM group |
| 19 | LAB | PM | A4 | Adding method acceptance limits or control limits to calibration control process charts or charting duplicate sample precision results can help staff review quality control results more easily | The LIMS system has been implemented at a basic level in the laboratory. Ongoing projects include expanding on the LIMS tools for data validation which includes charting of calibration and duplicate sample precision QC checks with control limits clearly displayed | |
| 20 | LAB | VOC | A4 | Adding method acceptance limits or control limits to calibration control process charts or charting duplicate sample precision results can help staff review quality control results more easily | SOPs contain method acceptance limits. Acceptance limits and duplicate precision is tabulated. Tabulated results checked by first validator. The LIMS system has been implemented at a basic level in the laboratory. Ongoing projects include expanding on the LIMS tools for data validation which includes charting of calibration and duplicate sample precision QC checks, with control limits clearly displayed | |
| 21 | QA | QA | A4 | The stated lack of confidence by QA staff as to the reliability of TO-15 standards purchased by the laboratory needs to be addressed | In July 2009, AQMD submitted the certified primary TO15 standard to CARB for analysis. Performance evaluations were implemented to provide indications of standard performance. AQMD has suggested to expand the PGVP program to include PAMS and TO15 standards in the U.S. EPA QA Working Group | Recertification of standards and purchasing NIST cylinders are being considered. Regular intercomparisons with U.S. EPA Region 9 lab and ARB havee been implemented |
| 22 | LAB | VOC | A4 | Validation of laboratory data should be performed by QA staff not performing sample collection and/or analysis | Data validation is performed by analyst at level 0 and the Senior Chemist in the VOC group at higher levels. The data is then reviewed as part of the certification by QA staff. Thus there are several steps that are independent of the operations staff | |
| 23 | LAB | PM | A5 | Quarterly data entry to AQS for PM2.5 and PM10 not competed on time | The LIMS system has been implemented at a basic level in the laboratory and substantial progress has been made in the past three years. Ongoing projects include expanding on the LIMS tools for data validation which includes a more automated checking and reporting of data to AQS | Subject of CAR20130003, and CAR20130004 |
| 24 | AM | OP | B1 | PM10 data at the Indio site are not representative of neighborhood scale monitoring | AQMD ongoing evaluations of the PM10 data at Indio shows that the site is appropriate for neighborhood scale or greater monitoring. While it is adjacent to an undeveloped lot that is occasionally used for parking or events, such events are noted, and data are continually assessed. We look forward to discussing the EPA data analysis that resulted in this finding | District personnel are working with Indio city officals to mitigate parking in the undeveloped lot. Meanwhile, consideration is being given to re-designating the scale for PM10 if the data show influence from local sources. A PM10 sampler has been deployed at a nearby vicinity for a one-year comparison study. Year-long study shows that there was an average 10% difference between a sampler located at the main station (near the dirt lot) and a satellite sampler sites away from the influence of the same lot |
| 25 | AM | SM | B2 | Exide-Rehrig should be a collocated lead monitoring site | Collocated samples at this site have been taken since 2010 | |
| 26 | AM | OP | B3 | Placement of PM monitors at Anaheim does not meet collocation requirements | Monitors were moved in 2010 to meet collocation requirements | |
| 27 | AM | SM | B4 | AQMD does not routinely notify EPA about collecting data from (Special Purpose Monitoring) SPM and sometimes does not enter that data into AQS | According to 40 CFR 58.20, "An SPM is defined as any monitor included in an agency's monitoring network that the agency has designated as a special purpose monitor in its annual monitoring network plan and in AQS." Therefore, SCAQMD's special monitoring studies are not official SPMs unless specifically designated in the annual network plan submitted by SCAQMD and approved by EPA. The administrative burden of setting up an AQS site for every short-term monitoring study is extreme, and current AQS capabilities do not allow for sufficient flagging and descriptions of these sites such that the data would not be mis-used. However, SCAQMD recognizes the desire and need of EPA to consider such data in attainment decisions, and such measurements and data will be provided to EPA upon request, and could be submitted to AQS if specifically requested. The annual network plan includes descriptions of many of these studies, although without official designation as SPMs. Furthermore, for special studies using federal methods that last 1 year of longer, AQMD will work towards including such data in AQS when appropriate | |
| 28 | AM | OP | B5 | AQMD has a dense monitoring network and may include redundant or low-value sites | Potential approaches for consolidation of redundant or low value sites has been outlined in the 2010 5-year network assessment. However, there are other considerations which may justify the need for many of these sites and a dense air monitoring network at some locations | |
| 29 | EPA | EPA | C | Introductory Paragraph | "Junior AQIS" is not an official AQMD title; AQIS or Assistant AQIS should be used instead. Each section of Support is headed up by a Senior AQIS also | |

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| 30 | AM | OP | C1 | One point flow rate verifications were not being performed on continuous PM10 instruments until August 2008. It is recommended that the data prior to August 2008 be re-evaluated. | Continuous PM10 data prior to 2008 was not submitted to AQS. Data in 2008 was submitted to AQS with the appropriate flag (QA Flag #1) to indicate that not all QC checks were implemented but calibration (as-is flow) and leak check data was evaluated to validate data submitted. This was indicated as part of the certification process in July 2010 | |
| 31 | LAB | PM | C2 | Collocated Filter based PM10 are not currently submitted to AQS under an independent monitor POC; Exhide should have separate POCs for each monitor | POC's for collocated samplers have been added to AQS. The three samplers at Exide site have their own POC | |
| 32 | AM | OP | C3 | Inlet at the Pomona station does not meet siting criteria for O3 and NO2 monitoring | Consideration is being given to consolidation or modification of the Pomona site due to issues with siting criteria as outlined in the 2010 5-year network assessment. If the site continues as is, data will be flagged appropriately. Planning indicated that this is an important site. SCAQMD will submit a waiver request to cover the period until an alternative suitable location can be found | |
| 33 | LAB | VOC | D1 | Clean Canisters at capacity, and cleaning time changes pending demand of canisters | Canister cleaning systems provide enough throughput. Canister sample and blank analyses are the rate-determining steps. The canister cleaning staff confirmed that Instrument cleaning time does not change, but the number of cleaning batches per day, rather than cleaning purge/pump cycles per batch, change as a function of load | 32 additional cans were ordered on 8/19/10. Released Silonite toxics cans for PAMS use |
| 34 | LAB | VOC | D2 | TO-15 calibration standards suspect; second check standard should be implemented | In July 2009, SCAQMD submitted the certified primary TO15 standard to CARB for analysis. Performance evaluations were implemented to provide indications of standard performance. Secondary check standard is implemented. In late 2012, SCAQMD submitted the certified primary TO15 standard to Professor Reimer (University of Miami) at the recommendation of Steve Remaley (EPA Region 9) for analysis. As of 09/01/13 results have not been received. SCAQMD working with Remaley to implement a "universal" primary TO15 standard for all regional labs | |
| 35 | LAB | VOC | D3 | Internal standards and calculated retention times are not being used as part of the target peak compound identification process as described in the PAMS guidance | The batch runs are bracketed by the EPA retention time standard. The retention times on the standard is compared to the retention times of the compound identification for the samples. Internal standards were not used at the time of the audit. Discussions with U.S. EPA are underway to select and apply an appropriate internal standard | |
| 36 | LAB | VOC | D3 | GC/MS confirmation not performed on % of samples | SCAQMD performed analyses of PAMS samples by GC/MS. Two areas of concern have been identified by MS: Isopentane/acetone and styrene/octanol coelutions. Interferents are of such low level as to be negligible (<2%) | |
| 37 | LAB | VOC | D3 | Duplicate analyses not being performed inside 2009 PAMS season | SCAQMD recognizes that duplicates are an important aspect of quality control and implemented extra duplicate analyses during the PAMS non-intensive season to pre-empt time constraints of the intensive season analysis. Since 2010, 10% of all summer samples have been run in duplicate | |
| 38 | LAB | VOC | D3 | Evolution to GC/MS FID PAMS analysis should be considered | PAMS program may be going through major changes soon, along with consideration for changing analyses | |
| 39 | LAB | VOC | D4 | TO-15 MDL has not been performed for many years due to time constraints | MDL determination will be performed annually at a minimum. NATTS/PAMS qualification on yearly schedule | Annual qualification is performed |
| 40 | LAB | VOC | D5 | Canister cleaning batch acceptance parameters are different than prescribed in TAD; need to demonstrate equivalency to 1/8 acceptance criteria | Statistics were developed to investigate that the maximum of 1 failure out of 3 in a set of eight would yield equal or better confidence in cleanliness. Documentation was presented to QA Branch for review | QA Branch found the data acceptable |
| 41 | LAB | VOC | D6 | Lead or supervisory staff leave no evidence of secondary review on logbooks | This has been addressed / resolved. Minimum of 20% will be secondarily checked by senior/supervisor; this is incorporated into the draft PAMS QAPP | |
| 42 | LAB | PM | D6 | Lead or supervisory staff leave no evidence of secondary review on logbooks | Implemented with new review procedure | |
| 43 | QA | QA | D6 | QA group should also periodically spot-check these logbooks | QA staff routinely checks logbooks apart from formal audits; logbooks are investigated during internal TSAs | |
| 44 | LAB | PM | D7 | Method for Pb Analysis for NAAQS compliance is modification of FEM | Work is in progress to complete the necessary gathering of data and associated documentation as required in 40 CFR Part 53.33. About 80% of the instrumental analytical work is completed. Audit test filters analysis and comparability test from collocated samples remain to be completed. Application paperwork for FEM equivalency has begun | |
| 45 | AM | SM | D8 | Sampling systems for collection of PAMS and Toxics samples are not routinely certified | Sampler certification is an annual process and has been implemented but not completed to the specifications as indicated in TAD. However, demonstration of moving towards a complete certification process consistent with TADs was shown through ordering of equipment and in draft planning documents | Annual certifications will be consistent with PAMS and NATTS TADs as specified in QAPP |

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| 46 | AM | OP | D9 | Field technician not aware of criteria for storage and handling requirements of carbonyl sampling cartridges in the field | SOP SOP00119 Carbonyl Sampler Atec 800_V1.1 describes carbonyl sampling cartridge handling procedues in the field. Update to SOP is in progress and Training will be conducted prior to end of the intensive PAMS season when operations personnel take over maintenance of the PAMS network from the Special Monitoring Group | |
| 47 | LAB | PM | D10 | Current lot blank process differs from QA Handboook specification that PM2.5 lot blanks should be done using 3 filters from each lot of PM2.5 filters and periodically reweighed | A lot blank from current filter batch is and always has been weighed at the beginning of every weighing session. Data can be provided upon request | |
| 48 | AM | DM | E1 | Only a limited number of flags are used which may limit the appropriateness of flags to some of the data | Starting with 2010 2nd quarter data, data acquisition and validation system has been tested on a DMS platform which is able to implement all available flags. The most appropriate flags will be assigned to the data when applicable | |
| 49 | AM | DM | E2 | Data validators do not differentiate between upper limit flat-lined data and instrument error data issues (BAM 1020) | Full-scale data points are investigated to determine whether the value is instrument error or if measurements are valid above full scale . Using digital instrument output and more flexible DMS tools will allow for better evaluation of full-scale readings. Proper AQS codes will be applied for full-scale valid readings and instrument errors at full-scale will be invalidated with proper documentation | |
| 50 | AM | DM | E3 | No validation flag was assigned for the Perris ozone monitor from May2-5, 2009 | Data during that time was backfilled from the Chessel to the data acquisition database. Data has been reviewed and submitted to AQS | |
| 51 | ALL | All | E4 | Electronic records are not always handled in a manner that maintains integrity | New tools have recently been acquired to address documentation integrity. Data centralization and backup in the laboratory was implemented January 1, 2010 and has ongoing development for data validation and tracking. A Sharepoint server has been implemented and will be the source for current documentation and medium for communication for project coordination and QA | |
| 52 | LAB | PM | E4 | PM raw data files is editable and used by data validators | LIMS system retains raw data and tracks all edits by data validators | |
| 53 | AM | SUP | E4 | Calibration laboratory documents are editable | Access to directories where files are stored has now been limited to Support Staff only. Systems for the review and approval of calibration forms with version control are being evaluated and will be implemented. The new document management system will permanently archive uneditable files | |
| 54 | LAB | PM | E5 | Data validators do not review the PM2.5 filter custody forms | The PM2.5 filter custody forms have been always been reviewed by the Senior AQ Chemist or desgnee on a quarterly basis and before data submittal to AQS | |
| 55 | QA | QA | F1 | Flow audits of continuous particulate monitors are not conducted at the required frequency | A semi-annual flow rate audit schedule has been implemented. The first set of semi-annual audits were conducted for 2010 and the second set is scheduled for December 2010 | |
| 56 | QA | QA | F2 | Logbooks in all operational areas were not formally tracked and controlled | A logbook chain of custody and database has been implemented. Tracking is established with logbook custodians assigned to both Atmospheric Measurements and Laboratory Services Branch | |
| 57 | QA | QA | F3 | Formal corrective action process should be improved: The SCAQMD corrective action process should be the primary system to document how significant deficiencies have been addressed. This information should be accessible to all monitoring staff and managers. Additionally, staff should be encouraged to use this process to resolve or document issues that they believe are significant or are not being resolved through normal management communications. It was also noted that the corrective action form did not included a discussion of how similar deficiencies would be prevented from recurring | The Corrective Action Process has been improved substantially. Impacted parties have been informed . Training has been documented. A "Quality Assurance Alert" system (which allows for direct formal communication to Quality Assurance outside of normal management channels) has been implemented. Patterns of deficiencies leading to systematic correction are identified in a new corrective action request and in the Annual Quality Assurance Assessment Report, which includes assessment of the Corrective Actions for the year, and findings which were identified as part of the certification process. The report is distributed to DEO through Senior staff | QA staff has been seeking measures to improve the Corrective Action Process including reviewing the U.S. EPA Region 9 Laboratory Corrective Action Process. CAR and QAA forms and guidelines were revised in January 2013 to include reoccurrance minimization statments. A Sharerepoint site is now used to convey information |
| 58 | QA | QA | F4 | Control charts used by the QA group to track data quality do not include all the data being produced | The results of the manual PM method performance evaluations are visually represented in control charts and are reviewed annually by QA staff to check long term performance of monitors and programs. Control charting of the performance evaluations of continuous monitors will be conducted | |
| 59 | QA | QA | F5 | QA audits of gaseous pollutants were not scheduled as required by regulation | During the past seveeral years QA audits of gaseous pollutants have been consistently scheduled as required by regulation | |
| 60 | AM | SUP | R1 | SCAQMD uses horizontal manifolds at the monitoring sites. EPA recommends (Appendix F of the QA handbook) that horizontal manifolds be oriented in a manner so as to prevent condensation from getting into the instrument lines. Several SCAQMD sites have horizontal manifolds oriented with the inlets on the bottom, which would not prevent debris or condensations from getting into sampling lines | This finding was addressed and accepted by U.S. EPA Region 9 from the 2007 TSA findings. Where feasible, the manifolds at stations were re-oriented, but not at all stations. However, all new station installations are equipped with the horizontal manifolds in the orientation that prevents condensation from getting into the instrument lines per U.S. EPA recommendation | |

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| 61 | AM | OP | R2 | Based on a review of field PM2.5 tracking forms received by the laboratory, it was observed that the field technicians do not always complete these forms. The information included in these forms documents the field collection process and should be completed | Training for PM2.5 RAAS samplers was conducted on 5/12/10 which emphasized instructions on completion of sample collection sheets. Laboratory reviews field data and requests for the appropriate information if missing | A reminder has been sent out to emphasize completion of collection sheets. Bar code readers and electronic data collection were implemented in 2011. QA Branch data tracking audits review tracking forms and check for completeness |
| 62 | AM | OP | R3 | The toxics sampling site visited, Pico Rivera, is equipped with a manifold system similar to a standard air monitoring station. The technician confirmed that the proper operation of this manifold and "kicker pump" is evaluated during site visits. However, this QC check is not recorded on a site maintenance form or in the station logbook | The monthly maintenance sheet has been modified to have an additional space for recording the QC check on the "kicker" pump | |
| 63 | LAB | VOC | R4 | In order to verify the integrity of ambient air samples, it is recommended that the final canister pressures be recorded from a certified pressure gauge both in the field and in the laboratory | Each sample has the canister gauge compared against the field instrument gauge which is regularly calibrated. This canister gauge is then secondarily qualifed for use in the lab as per the SOP. Chain of Custody sheets have been modified to record pressures | |
| 64 | AM | OP | R5 | Canisters should be stored in the field at ambient temperature and away from direct sunlight. If they will be stored for several hours in a vehicle in the field, they should be placed in an insulated container | Canisters are currently stored at air monitoring stations which are temperature controlled and out of direct sunlight. The 910 SOP has been modified with QA input to include information on storage of canisters in vehicles | |
| 65 | AM | SUP | R6 | Station temperatures need to be recorded consistently | Repair section is in the process of installing indoor temperature measurements at the remaining air monitoring sites that do not currently have them. Operations needs to check placement. All but one station has them installed | |
| 66 | AM | OP | R7 | Monitor the distance and height of the trees near the Rubidoux site | Trees are currently monitored for siting criteria at the Rudidoux site | |
| 67 | AM | OP | R8 | Check to determine if the LA Main site height meets requirements for all programs | The LA main site meets height requirement for sample inlets. Inlets are less than 15 m above ground | |
| 68 | AM | OP | R9 | Evaluate whether the TSP monitor at the Pasadena site can be moved to an unobstructed location | TSP sampler in Pasadena has been removed; EPA has been notified | |
| 69 | AM | OP | R10 | Construction activities near the Pico Rivera site are probably impacting the PM monitoring, which could lead to problems with data completeness. Consideration should be given to moving this site so that it is not impacted by construction | Construction adjacent to the air monitoring site is temporary. Operations technicians note activities when they affects sample collection. No construction activity has been noted over the past 3 years | |
| 70 | AM | OP | R11 | Mission Viejo PM monitors are sited next to a building on the downwind side. While the distance from the building to the monitors may meet siting requirements, predominant wind on the day of the EPA visit was such that the monitors may have been experiencing an altered air mass from the inlets on the roof. EPA suggests moving the monitors out further from the building to sample a more representative air mass | Monitors meet siting criteria in their current location. Relocation of monitors farther away from nearby buildings has been considered extensively in the past. However, this may lead to a safety hazard if monitors were to be placed too close to vehicles | |
| 71 | LAB | VOC | R12 | The run channels of the carbonyl samplers should be evaluated periodically for blank contamination. As currently operated, the carbonyl samples have channels dedicated for blank samples. This approach does not provide for any blank control of the normal sampling channels | The blank certification of carbonyl samplers was on schedule just before the 2010 PAMS intensive season | Bias check with clean airstream instituted 2010 season of carbonyl run channels. Blanks were considered trip blanks |
| 72 | LAB | PM | R13 | PM filter disposal should be documented so that the laboratory can track the filters that are available in storage and those that have been disposed of | Log books were implemented to document storage and disposal of PM filters, starting with 2003 filters | |

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| 73 | LAB | PM | R14 | Filter custody forms should originate from the laboratory and include information on filter ID, conditioning, preweight, and expiration dates. The recorder should initial the entry | Applicable information essential to the sample collection is on the Chain of Custody form. Other information indicated in this finding is recorded in log books in the Laboratory. For example, the expiration date is addressed during the weighing process so that the filters are not weighed too far in advance of the sampling date. Filter custody for PM10 and TSP groups is done by signatures on filter envelopes. Filter custody for PM2.5 group is done by station operator in the field. Blank COCs are supplied with filters and completed by field staff | |
| 74 | LAB | PM | R15 | The filter laboratory temperature and humidity sensor should be placed so that it cannot be influenced by the analyst's breath | Sensor has been moved away from the PM weighing stations so as not to be affected by analyst | |
| 75 | LAB | PM | R16 | The ventilation system for the filter weighing room brings hot air to an air-conditioned interior space. This configuration wastes energy. Altering the configuration to vent outside would be more energy efficient and might reduce costs | Assessments have been done in the past for reconfiguring the ventilation system and may be considered when upgrading the entire system, which is over 15 years old. Room upgrade funds allocated as of 8/8/13 | |
| 76 | LAB | VOC | R17 | The field log books for PAMS and Toxics should be checked by the validators | Monthly review of logbooks for GCs to be implemented by Senior Chemist; review of manual method sampler log books by Senior instrument specialist Special monitoring | |
| 77 | LAB | VOC | R18 | Field GCs are not verified on a regular basis at some sites by the chemist because this requires driving to the monitoring site. It is recommended that these remote systems be upgraded to connect to electronic recorders so the analyst can access them in the laboratory. This will reduce travel and allow the chemist to identify and correct a problem quickly | Lab staff visits both the Burbank and Pico Rivera site at least weekly during the intensive season to receive liquid nitrogen. The trip is also used to inspect instrumentation and equipment. Data is monitored remotely using Laplink daily and downloaded to the analyst's headquarters computer on a weekly basis, at a minimum. Analyst monitoring after work hours has identified problems this year and led to expedited repairs and less down time than past years | VNC Server installed July 2010 by IM allows for in lab monitoring/control of field GCs |
| 78 | LAB | VOC | R19 | Newly purchased PAMS canisters are not tested to certify they meet criteria for cleanliness (blanking) prior to use. Guidance specifies that all new canisters should be analyzed for cleanliness. The purpose of canister cleaning is to ensure that canister interior surfaces are free of contaminants and meet predetermined cleanliness criteria. This minimizes the potential for carryover of pollutants from one sample to the next, and helps ensure that samples collected are representative (TAD). SCAQMD should adhere to guidance and test all new canisters prior to use to verify that they are free of contamination. | New cans come with certification and chromatograms. All new cans are cleaned and individually checked analytically for cleanliness before initial use | |
| 79 | LAB | VOC | R20 | The laboratory should investigate and consider upgrading to a dual GC/FID /mass selective detector configuration. Such configuration would reduce the effort involved in the current process and significantly facilitate proper compound identification. It would add another measure of confidence in compound identification | GC/FID/MS analyses are routinely performed on ambient air and only two coelutions have been identified with any consequence. Isopentane/acetone and Styrene/octonol. The error introduced is a negligable % of the total NMOC. It was shown to the auditors where the daily calibration check varied less than 5% over one years time. An upgrade to GC/FID/MS will be considered when resource allocation to the PAMS project is assessed | |
| 80 | LAB | PM | R21 | The Pb data validation report has a place for a senior chemist's signature, but was not signed. The District should complete documentation of QA activities, including initials or signatures | A Pb data validation report was not in use at the time of the audit. The audit members may have been looking at a prototype form that was being considered for use | |
| 81 | ALL | All | R21 | The Pb data validation report has a place for a senior chemist's signature, but was not signed. The District should complete documentation of QA activities, including initials or signatures | A Pb data validation report was not in use at the time of the audit. The audit members may have been looking at a prototype form that was being considered for use. Signatures and initials are now implemented | |

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| 82 | LAB | PM | R22 | Two student interns perform visual inspection of all the filters to be used for Pb analysis. This is a repetitive task that relies heavily on analyst concentration of effort. The laboratory may wish to introduce a quality control check point, such as introducing filters with known defects, into the filter inspection stream | A quality control check point may be introduced by intentionally damaging a filter from the set (e.g. adding a pinhole). Filters for Pb analysis are consecutively numbered so that it may be possible to see that the filter with known defects does not belong to that series | |
| 83 | LAB | PM | R23 | Internal chain of custody forms are not used once filters are received from the field | The LIMS system has been implemented at a basic level in the laboratory. Ongoing projects include expanding on the LIMS tools for data validation which includes internal chain of custody. Bar scanners at each sampler, and laboratory station will mark the progress of samples from receipt, extraction and analysis | |
| 84 | LAB | All | R24 | Is a policy forbidding smoking, eating, or drinking in laboratory areas in place? How is this demonstrated? | Yes - See the SCAQMD LABORATORY SAFETY MANUAL MARCH 2012, the SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT Chemical Hygiene Plan (2013) and sign postings at the laboratory entries | |
| 85 | LAB | VOC | R25 | Standards from the same vendor, but a different lot, probably do not qualify as second source standards | Different vendors have been identified. Standards have been purchased for carbonyls. NIST 1800B is used for VOC. AQMD is working with Steve Remaley (Region 9) and other west coast laboratories on this matter | |
| 86 | LAB | VOC | R26 | The laboratory's method of bringing cartridge extracts to 5mL volume introduces a source of analytical error | SCAQMD laboratory Staff indicated that this laboratory method introduces a negligible source of analytical error. SOPs and apppropiate training are in place to guarrantee that this error is minimized | |
| 87 | LAB | VOC | R27 | Analyst and other staff were unaware of the target value for carbonyl MDLs; MDL results were reported in liquid (mL) units, and not back calculated to air volume units, which made it difficult to assess if method MDLs were achieved | The MDL in the SOP was selected to ensure that typical air volumes will result in compliance with MDL for the project with the lowest MDL. Other programs use different air volumes. It is left to the supervisor to calculate the reported MDL for each program from the analysts analytical MDL. Senior chemist is aware of required MDLs and examines the qualification and sample data. Also, annual instrument qualification reports are submitted to the QA Senior Chemist for review against the program specifications | Post conversion table near HPLC so analyst is aware of the required MDLs for meeting specifications for the different programs |
| 88 | LAB | PM | R28 | The laboratory tracks daily calibration standard results using a process quality control chart. However, it was not easy to determine if results were within control limits. Including method acceptance limit control or quality control lines to the plots would be useful | The LIMS system has been implemented at a basic level in the laboratory. Ongoing projects include expanding on the LIMS tools for data validation which includes charting of daily calibration standards complete with control limits clearly displayed | |
| 89 | LAB | VOC | R28 | The laboratory tracks daily calibration standard results using a process quality control chart. However, it was not easy to determine if results were within control limits. Including method acceptance limit control or quality control lines to the plots would be useful | The analyst is fully qualified to recognize the control limits from the tabulations but recognizes that visual plots would be useful. The LIMS system has been implemented at a basic level in the laboratory. Ongoing projects include expanding on the LIMS tools for data validation which includes charting of daily calibration standards complete with control limits clearly displayed | |
| 90 | LAB | PM | R29 | Duplicate samples are being analyzed, but the analyst was not able to state the control limits for acceptable results or what result would trigger a corrective action. Replicate results are being documented in tabulated format. It is important that the analyst and quality assurance staff refer to QC results when corrective action is needed, and that outliers are taken into account when data are evaluated against their intended use. Plotting duplicate results or calculated percent difference of duplicate results would help staff evaluate quality control results and limits | The LIMS has been implemented in the PM group. Using this system laboratory staff is able to easily produce a chart with clear control limits for SRM, spike, and blank QC samples. Any samples that fall outside of these limits are cause for corrective action | |
| 91 | LAB | VOC | R29 | Duplicate samples are being analyzed, but the analyst was not able to state the control limits for acceptable results or what result would trigger a corrective action. Replicate results are being documented in tabulated format. It is important that the analyst and quality assurance staff refer to QC results when corrective action is needed, and that outliers are taken into account when data are evaluated against their intended use. Plotting duplicate results or calculated percent difference of duplicate results would help staff evaluate quality control results and limits | The approved SOP now states control limits triggering corrective action. Analyst has learned the QC checks and acceptable criteria. The LIMS system has been implemented at a basic level in the laboratory. Ongoing projects include expanding on the LIMS tools for data validation which includes charting of duplicate samples complete with control limits clearly displayed | |

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| 92 | LAB | VOC | R30 | Laboratory staff were not clear if the acetonitrile used for extracting cartridges is tested for purity, nor what the upper limit of acceptable formaldehyde contamination is. According to the TO-11 method (Sect. 6.3; 9.2.1), it is important to know the amount of formaldehyde in the acetonitrile reagent since it will be converted to hydrazone, and therefore should be checked on a regular basis | DNPH must be added to the acetonitrile to trigger the hydrozone reaction. It thus becomes a test of the DNPH purity. Blank cartridge determinations per batch indicate whether the acetonitrile is contaminated along with the cartridge lot. To be clarified in relevant SOP | SOP under revision |
| 93 | QA | QA | R31 | There are no assigned document custodians in the operational areas. Some documents are tracked by the staff that created them. A formal system should be developed whereby official documents are created, used and archived so that they are available to all staff at all times | New tools have recently been acquired to address documentation integrity which allow for documentation tracking. A Sharepoint server has been implemented and will be the source for current documentation and medium for communication for project coordination and QA for all staff | |
| 94 | QA | QA | R32 | The QA performance auditor does not audit short term projects. However, data from some short-term projects may be used to make critical decisions regarding human health and the environment, in which case the data needs to be of known quality. It is recommended that when short-term projects are in the planning stage, the project data quality objectives (DQOs) be evaluated to determine whether QA audits should be included | A QAPP for Special Monitoring Projects (which documents this process) is in the stage of final review. For all short-term projects DQOs will be evaluated to assess the necessity of QA's involvement | |
| 95 | QA | QA | R33 | The rate of air flow through the equipment used to support the PAMS program should be periodically audited with an independent standard | Flow rates of PAMS equipment is certified by an independent standard in the Support or Special Monitoring group as part of the annual certification | In addition to the certification, a QA performance evaluation will be conducted with an independent standard |
| 96 | QA | QA | R34 | The QA Laboratory should develop a schedule for certifying primary and transfer standards. Certified standards should be verified upon receipt or soon thereafter | A schedule was created for recertification of standards and equipment. SCAQMD is participating in the PGVP and verifies standards when they are received | |
| 97 | QA | QA | R35 | The QA group should conduct regular audits of data quality. This should include selecting several reported values, verifying all the steps of the data collection process and recalculating the results | Audits of data quality have been introduced as part of the annual TSAs. The use/implementation of LIMS and DMS facilitates audits of data quality | |